

## RESEARCHING TOPICS

Research involves finding out something about a topic or subject. That means going to certain resources that will give you *accurate* information. Information can be found just about anywhere: from your home bookshelves to the public library, from asking experts to looking on the Internet. Here are the steps you need to follow when you do your research.

### Choosing a Topic

In some situations your teacher may give you the topic to research. Other times, you will have to select one of your own. If you have trouble coming up with a topic, try brainstorming ideas either by yourself or with a group. Remember, when you brainstorm, there are no right or wrong answers, just "ideas." Here are some brainstorming suggestions to get you started:

- List two or three general topics about science that interest you.
- For each topic, write down as many words or ideas that relate to that topic. They don't have to be directly connected to science. (Just spend a few minutes.)
- Share your list with others and ask them to suggest other possibilities.
- Now you have to "filter" your idea list to find a topic to research. In other words, go through your ideas until you find two or three that interest you. To help you narrow your idea list, try grouping similar words or ideas, modifying what you've written, or even writing down a new idea. Sometimes, too, working with other people will help to focus your thoughts.

- When you settle on an idea for your topic, write it down. Try to explain it in a couple of sentences or a short paragraph. Do that for each of your two or three topic ideas.
- Have your teacher approve your topics. Now you're ready to go!

The next thing you have to do is settle on one topic. (Remember, you should start your research with two or three topic ideas.) One way to help you decide is to determine how easy it will be to find information on your topic.

- Use some of the resources listed on the next page to do your research.
- If you can't easily find at least *four* references for a topic, consider dropping it and going on to the next idea.

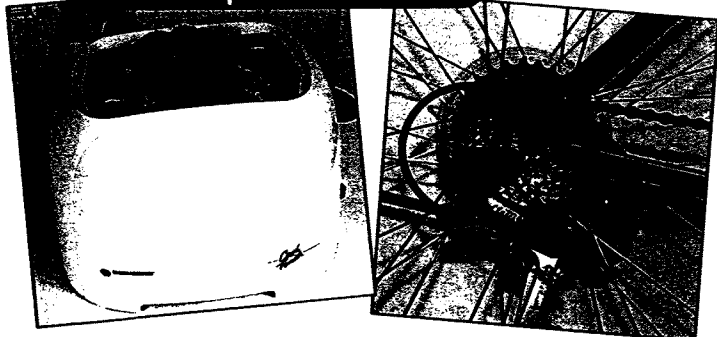
### Hint

Sometimes topics are too broad in scope or too general to make good research reports (for example, "transportation" instead of just "bicycles"). Try rewriting your topic to narrow its focus.

If all the topics are easy to research, then you'll need some other criteria to help you decide.

- Which of your topics interest you the most?
- Which topic is *not* being researched by many students in your class?
- Which topics interest you the least? (Eliminate them.)

### Which Topic Should I Choose?



"How does product design help sell a product?"

"How do gears improve the performance of a bicycle?"

### How Hard Will It Be to Find Information?



How Camera Lenses Are Manufactured

How Mirrors Are Used in Some Optical Devices

Once you've finally chosen your topic, you might want to work with other students and your teacher to:

- finalize its wording
- make sure it matches the project or assignment you are doing

### Finding Information

There are many resources that you can use to look up information. Here is a suggested list. You'll find some of these resources:

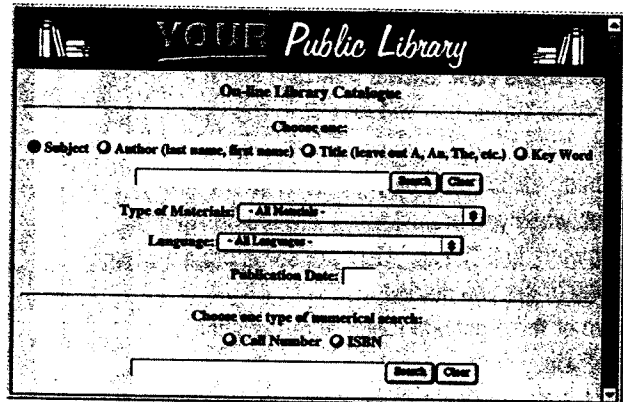
- in your school
- in your community (such as your public library)
- on the Internet
- in CD-ROM encyclopedias and databases

Resources	Available	Used
Books		
CD-ROMs		
Community Professionals or Experts		
Encyclopedias		
Films		
Government Agencies (local, provincial, and federal)		
Internet Sites		
Journals		
Laser Disks		
Library Catalogue		
Newspapers		
Non-profit Organizations		
Posters		
Videos		

## Searching Tips

### Finding Information at Your Library

Library computer catalogues are a fast way to find books on the subjects you are researching. Most of these electronic catalogues have four ways to search: *subject*, *author*, *title*, and *key words*. If you know the *author* or *title* of a book, just type it in. Otherwise, use the *subject* and *key words* searches to find books on your topic.



- If you're doing a *subject* search, type in the main topic you are researching. For example, if you're searching for information on solar energy, type in "solar energy." If there are no books on that topic, try again using a more general category, like "renewable resources," or just "energy."
- If you're doing a *key words* search, type in any combination of words that have to do with your topic. For the solar energy example, you could type in words such as: "renewable energy sun solar panels." Using several key words will give you a more specific search. Using only one or two key words, like "sun" and "energy," will give you a more general search.

### Hint

The library may also have a way to search for magazine articles. This is called a *periodical search*. It's especially useful for searching for information on events and/or discoveries that have taken place recently. Ask your librarian how to do a periodical search.

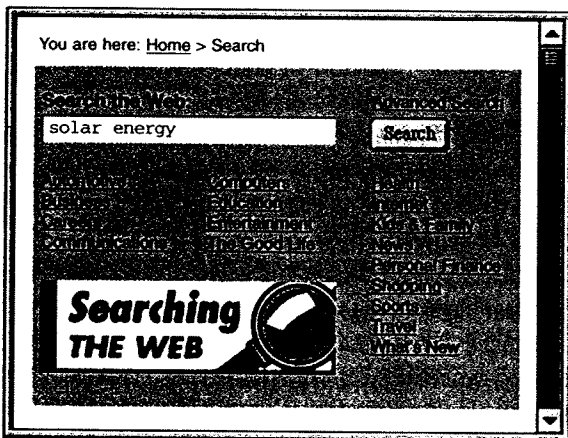
Also, your library will probably have a reference section where all the encyclopedias are kept. There you may find science and technology, environmental, or even animal encyclopedias, as well as other reference books.

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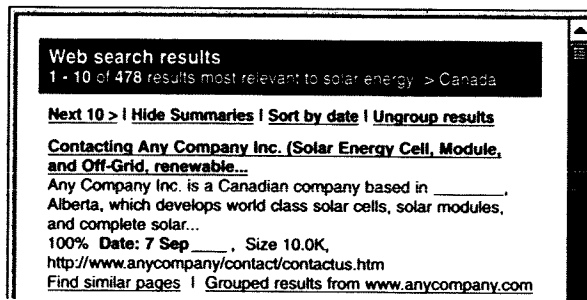
## Finding Information on the Internet

On the Internet, you can use searching programs, called *search engines*, to search the Internet on just about any subject. To find a search engine, ask your teacher or click on the search icon found at the top of your Internet browser. Here are some suggestions on how to search the Internet:

- Once you reach a search engine Web page, type in key words or phrases that have to do with your topic. For solar energy, you could type in "solar energy," "solar panels," "renewable resources," or any combination of these and other similar words.



- The search engine will display a list of Web pages it has found that have these words or phrases somewhere in them. Click on any Web page on the list that looks interesting.
- Quite often you will get a long list of possible Web pages to look at. You may need to make your search more specific. This can be done by adding other key words to your search. For example, if you were looking for solar energy examples in Canada and used the key word "solar energy," you may want to do a second search of these results with the key word "Canada" added.
- Don't forget to record the addresses of any interesting Web pages you find. Why not work with a friend? One person can record the addresses of Web pages while the other person searches on the computer. Or you can save it as a *bookmark*. Your Internet browser allows you to save Web pages for easy future access. Check with your teacher or librarian to find out how to save and organize your bookmarks.



## Before You Start!

Check with your teacher to find out what your school's policy is about acceptable use of the Internet. Remember to follow this policy whenever you use the Internet at school. Be aware as you use the Internet that some Web sites may be strongly biased toward a specific point of view. If you are looking for scientific or technical information, educational or government Web sites are generally reliable.

## Recording Your Information Sources

An important part of researching a topic is keeping track of where you obtain information. As you do your research, you are reading through or viewing a variety of different sources. Some may be in print, such as magazines and books. Others may be electronic, such as Web sites and CD ROMs. And others may be visual, such as videos and photos. No matter what sources you use, you should keep track of them.

With this information, you can easily go back and check details. You can also use it to help you respond to any questions about the accuracy or completeness of your report. Your record of information sources should include at least the following basic information:

- title or name of the source (e.g., if you read a chapter of a book, you would write down the book's title; for a Web site, you would include the address)
- author's name, if known
- publisher (e.g., for a Web site, this would be the name of person or organization who has put up the site)
- date of publication
- pages consulted

When you prepare your report, your teacher may want you to list your information sources in a specific format. Check what this format will be before you begin your research so that you can collect the details you need to complete your reference list later. You may want to do your own research on formats for such reference lists or bibliographies.